

## Patent Abstracts of Japan

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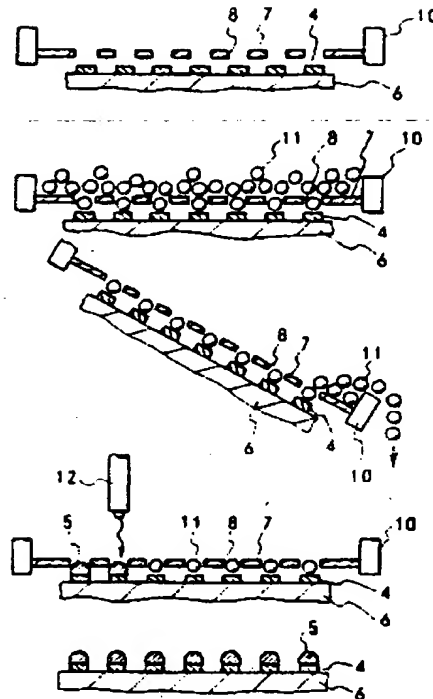
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TITLE : MANUFACTURE OF  
SEMICONDUCTOR DEVICE



**ABSTRACT :** **PURPOSE:** To efficiently form bump electrodes by a method wherein metal balls are supplied from the top surface of a positioning sheet, the metal balls are housed individually at the inside of openings and the metal balls are heated and melted in order to deposit and form the electrodes in electrode formation positions of an integrated circuit situated at the lower part of the openings.

**CONSTITUTION:** A positioning sheet 7 is fixed collectively above an integrated circuit substrate 6. Metal balls 11 are dropped and supplied from the upper part of the positioning sheet 7. The positioning sheet 7 is shifted in the horizontal direction; the metal balls 11 are housed individually at the inside of individual openings 8. The sheet 7 and the substrate 6 are tilted up to a prescribed angle. The substrate 6 where the sheet 7 has been fixed is placed on an X-Y stage. A laser irradiation mechanism 12 is positioned directly above the openings 8; a laser beam is irradiated. The metal balls 11 are heated and melted; they are applied to substratum electrodes 4 on the substrate 6. A liquid metal of each metal ball 11 is cooled and hardened to be hemispherical. When the sheet 7 is detached, bump electrodes 5 can be obtained efficiently.

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